

15 *Direct* rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Please replace claim 13 as follows:

13. (once amended) A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of
5 oxygen, wherein the catalyst comprises a carbon support having a noble metal, carbon, and oxygen at a surface of the carbon support;

B2 said catalyst being characterized as having a ratio of carbon atoms to oxygen atoms of at least about 20:1 at the
10 surface as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Please replace claim 23 as follows:

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23. (once amended) A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of
5 oxygen, wherein the catalyst comprises a carbon support comprising: (a) a noble metal at a surface of the carbon support; and (b) a surface layer having a thickness of about 50 Å as measured inwardly from the surface and comprising carbon and oxygen, the ratio of carbon atoms to oxygen atoms in the surface
10 layer being at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following heating in the hydrogen atmosphere.

Please replace claim 150 as follows:

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5 150. (once amended) A process as set forth in claim 147 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 1.2 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant after following heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 10 900°C for about 30 minutes.

~~Please replace claim 151 as follows:~~

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5 151. (once amended) A process as set forth in claim 150 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 0.7 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant after following heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 10 900°C for about 30 minutes.

~~Please replace claim 152 as follows:~~

5 152. (once amended) A process as set forth in claim 151 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 0.5 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant after following heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to

about 900°C at a rate of about 10°C per minute, and then at about
10 900°C for about 30 minutes.

~~Please replace claim 153 as follows:~~

153. (once amended) A process as set forth in claim 152
wherein, before said oxidation of said reagent, the catalyst is
characterized such that no more than about 0.3 mmoles of carbon
monoxide per gram of catalyst is desorbed when a dry sample of
5 the catalyst, after being heated at a temperature of about 500°C
for about 1 hour in a hydrogen atmosphere and before being
exposed to an oxidant after following heating in a hydrogen
atmosphere is heated in a helium atmosphere from about 20 to
about 900°C at a rate of about 10°C per minute, and then at about
10 900°C for about 30 minutes.

Please replace claim 155 as follows:

155. (once amended) A process as set forth in claim 154
wherein:

the catalyst further comprises carbon and oxygen at the
surface of the carbon support and before said oxidation of said
5 reagent, the catalyst is characterized as having a ratio of
carbon atoms to oxygen atoms of at least about 20:1 at the
surface of the carbon support as measured by x-ray photoelectron
spectroscopy after the catalyst is heated at a temperature of
about 500°C for about 1 hour in a hydrogen atmosphere and before
10 the catalyst is exposed to an oxidant following the heating in
the hydrogen atmosphere.

Please add the following claims 200-247:

200. A process as set forth in claim 1 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt
thereof with said catalyst and oxygen, thereby producing a used

5 catalyst and a liquid reaction product comprising N-
(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst;
and

10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a
salt thereof with said used catalyst and oxygen, thereby
producing additional liquid reaction product comprising N-
(phosphonomethyl)glycine or a salt thereof.

201. A process as set forth in claim 200 further
comprising:

Be separating said additional liquid reaction product from said used
catalyst.

202. A process as set forth in claim 201 further comprising
repetitively contacting said used catalyst with oxygen and
further additional N-(phosphonomethyl)glycine or a salt thereof
to produce further additional liquid reaction product.

203. A process as set forth in claim 202 comprising:

5 initially contacting said catalyst with oxygen and N-
(phosphonomethyl)iminodiacetic acid or a salt thereof in a first
reaction cycle, to produce a used catalyst and a first liquid
reaction product comprising N-(phosphonomethyl)glycine or a salt
thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt
thereof with said used catalyst in another reaction cycle to

10 produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

204. A process as set forth in claim 203 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

205. A process as set forth in claim 200 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

206. A process as set forth in claim 13 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-
5 (phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

207. A process as set forth in claim 206 further comprising:

separating said additional liquid reaction product from said used catalyst.

208. A process as set forth in claim 207 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

bu 209. A process as set forth in claim 208 comprising:

5 initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

10 contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

210. A process as set forth in claim 209 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

211. A process as set forth in claim 206 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

me 212. A process as set forth in claim 23 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-
5 (phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst;
and

10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

213. A process as set forth in claim 212 further comprising:

separating said additional liquid reaction product from said used catalyst.

214. A process as set forth in claim 213 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

215. A process as set forth in claim 214 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

216. A process as set forth in claim 215 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

217. A process as set forth in claim 212 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

218. A process as set forth in claim 33 comprising:

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5 contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst;
and

10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

219. A process as set forth in claim 218 further comprising:

separating said additional liquid reaction product from said used catalyst.

220. A process as set forth in claim 219 further comprising repetitively contacting said used catalyst with oxygen and

further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

221. A process as set forth in claim 220 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid
5 reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

Be
contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to
10 produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

222. A process as set forth in claim 221 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

223. A process as set forth in claim 218 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-

(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

224. A process as set forth in claim 49 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt
thereof with said catalyst and oxygen, thereby producing a used
catalyst and a liquid reaction product comprising N-
5 (phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst;
and

be
10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a
salt thereof with said used catalyst and oxygen, thereby
producing additional liquid reaction product comprising N-
(phosphonomethyl)glycine or a salt thereof.

225. A process as set forth in claim 224 further
comprising:

separating said additional liquid reaction product from said used
catalyst.

226. A process as set forth in claim 225 further comprising
repetitively contacting said used catalyst with oxygen and
further additional N-(phosphonomethyl)glycine or a salt thereof
to produce further additional liquid reaction product.

227. A process as set forth in claim 226 comprising:

initially contacting said catalyst with oxygen and N-
(phosphonomethyl)iminodiacetic acid or a salt thereof in a first
reaction cycle, to produce a used catalyst and a first liquid

5 reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

10 contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 *be* contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

228. A process as set forth in claim 227 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

229. A process as set forth in claim 224 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

230. A process as set forth in claim 53 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used

5 catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst;
and

10 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

231. A process as set forth in claim 230 further comprising:

bu separating said additional liquid reaction product from said used catalyst.

232. A process as set forth in claim 231 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

233. A process as set forth in claim 232 comprising:

5 initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to

10 produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

234. A process as set forth in claim 233 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

235. A process as set forth in claim 230 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

236. A process as set forth in claim 79 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-
5 (phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby

10 producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

237. A process as set forth in claim 236 further comprising:

separating said additional liquid reaction product from said used catalyst.

238. A process as set forth in claim 237 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

239. A process as set forth in claim 238 comprising:

bu initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid
5 reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

10 contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

15 contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to

produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

240. A process as set forth in claim 239 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

241. A process as set forth in claim 236 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being
5 separated from said liquid reaction product by filtration.

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242. A process as set forth in claim 100 comprising:
contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;
5 separating said liquid reaction product from said used catalyst; and
contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby
10 producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

243. A process as set forth in claim 242 further comprising:

separating said additional liquid reaction product from said used catalyst.

244. A process as set forth in claim 243 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

245. A process as set forth in claim 244 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

246. A process as set forth in claim 245 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

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247. A process as set forth in claim 242 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.
